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Commonwealth of Massachusetts
Executive Office for Administration and Finance
Office of Management Information Systems
Bureau of Network Services
One Ashburton Place, Room 811
Boston, Massachusetts 02108



Using the Centrex System to Advantage: A Handbook for Users

GOVERNMENT DOCUMENTS
COLLECTION

1993

University of Massachusetts

William F. Weld
Governor

Argeo Paul Cellucci
Lieutenant Governor

Version 1.0 - August 25, 1993

033 1292

Important Telephone Numbers

Please fill in the proper number for your location.

Police: _____

Fire: _____

Medical: _____

In addition, the State Police operate an emergency telephone line in Boston, 24 hours-a-day, 365 days-a-year. To report an emergency to the State Police, call:

State Police

(617) 727-2111

Other Important Numbers

Commonwealth Operators: (617) 727-2121

Centrex Repair Line: (617) 727-3940

**Centrex Moves, Adds &
Changes Line: (617) 727-8621**

TDD/Relay Service

With New England Telephone's Relay Service, specially trained operators relay calls between TDD users and verbal/hearing persons anywhere in the United States and Canada. Relay operators are available 24 hours-a-day, 7 days-a-week to assist you.

In Massachusetts: 1-800-439-2370

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FOREWORD

The Office of Management Information Systems (OMIS), Bureau of Network Services (BNS) has developed this **CENTREX USERS HANDBOOK** to allow agencies to better understand the capabilities of the Commonwealth's Centrex system and therefore make more efficient use of it.

This handbook includes information on the following:

- What Centrex is.
- Policy on Personal Calls
- Toll Fraud
- Connecting telephone equipment to Centrex.
- Making long distance calls on Centrex.
- Communicating with other Commonwealth Agencies
- Understanding the chargeback telephone bill.
- How to reduce costs.
- How to activate certain Centrex features.

To assist you with an understanding of these issues, we have provided a summary chart for each of the major sections of this handbook. For more in-depth information, please refer to the text of that chapter. In some cases, it may be necessary to refer to this text to ensure proper access of the Centrex system through your particular telephone system.


We hope that this Centrex Users Guide will be helpful to you as you perform your state duties. We welcome your suggestions and comments and ask that you contact us at the address and number listed below.

Office of Management Information Systems
Bureau of Network Services
One Ashburton Place, Room 811
Boston, Massachusetts 02108

Network Operations Center
617-973-0940
or
617-727-3940

Bureau Director, Len Evenchik
617-973-0909

Director of OMIS, John Thomas Flynn
617-973-0975



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CENTREX SYSTEM OVERVIEW

What is Centrex?

The Commonwealth of Massachusetts uses a number of telecommunications systems throughout its various agencies. The system that connects most of these agencies is a service provided by New England Telephone called **Centrex**. Centrex is a telephone service which is an enhanced version of regular business telephone service. It allows an organization with multiple locations to be connected together so that placing calls and/or transferring calls is done in the most cost effective manner. In addition, the use of Centrex allows the Commonwealth of Massachusetts to contract with New England Telephone for a lower monthly rate than would be normally available if agencies purchased telephone service on an agency by agency basis.

The Centrex system for the Commonwealth of Massachusetts is a large and customized system. The Commonwealth of Massachusetts and New England Telephone have configured the system in order to ensure that agencies are provided with access to the system while keeping costs at an acceptable level. Although the Centrex system tends to change from week to week in regards to the number of lines and features being provided, the system can be broken down into several distinct parts:

Boston Centrex System (727-XXXX)

This system is served from New England Telephone's Bowdoin Central Office which is located near the State House and provides service to over 8,000 Commonwealth users who use 727-XXXX telephone numbers. (The Legislature has a separate Centrex system which is identified by the telephone number 722-XXXX.)

Worcester Centrex System (792-XXXX)

This system is serviced from New England Telephone's Worcester Central Office and provides service to approximately 500 Commonwealth users who use 792-XXXX telephone numbers.

Springfield Centrex System (784-XXXX)

This system is serviced from New England Telephone's Springfield Central Office and provides service to approximately 400 Commonwealth users who use 784-XXXX telephone numbers.

The three Centrex systems are connected together with high capacity telephone lines called **T1 circuits** to allow the system to operate as one. (A T1 circuit is a telephone line that supports 24 users at the same time.) With these T1 circuits, users in Springfield can reach a user in Boston and vice versa without incurring long distance toll charges. New England Telephone maintains the three Centrex systems as if they were one system and provides all billing and maintenance through a special group within their organization specifically assigned to the Commonwealth Centrex system.

Figure 1 shows the layout of the Commonwealth's three Centrex systems and how they are connected to each other for simplified operation. The chart on the same page provides a summary of the Commonwealth's Centrex system and is provided for easy reference.

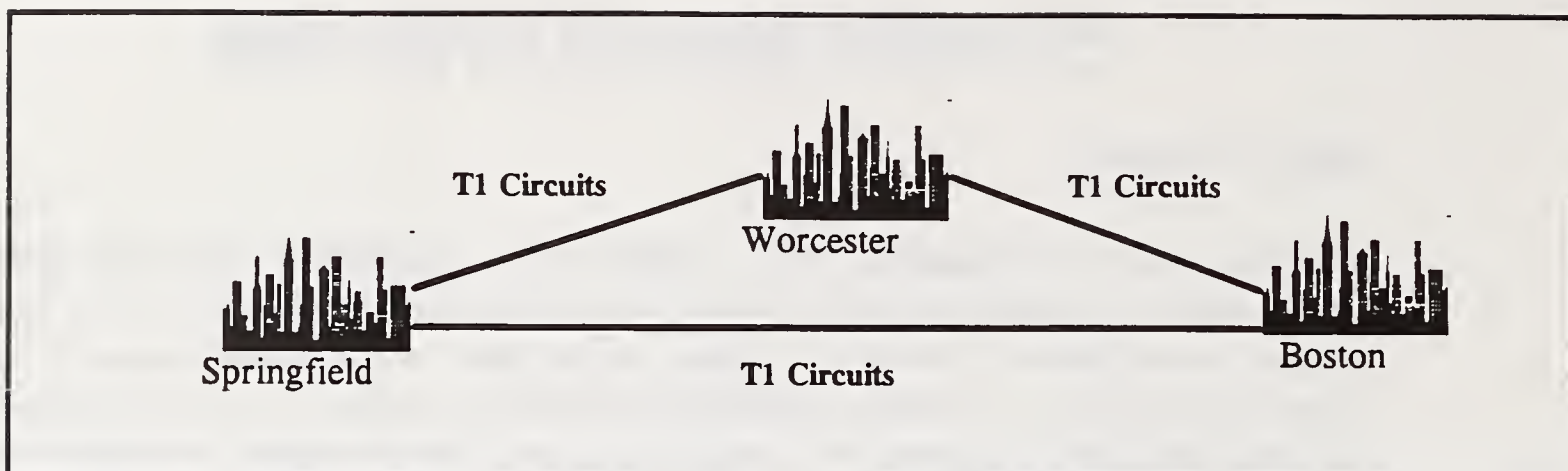


Figure 1 - Commonwealth Centrex Systems

COMMONWEALTH OF MASSACHUSETTS CENTREX SYSTEM OVERVIEW

CENTREX SYSTEM LOCATION	DESCRIPTION
Boston	<ul style="list-style-type: none"> * Identified by (617) 727-XXXX number. * Largest of Commonwealth's Centrex Systems. * Serves users in Eastern part of State.
Worcester	<ul style="list-style-type: none"> * Identified by (508) 792-XXXX number. * Serves agencies in Central part of State with majority in Worcester area.
Springfield	<ul style="list-style-type: none"> * Identified by (413) 784-XXXX number. * Serves agencies in the Western part of the State with the majority in Springfield area.

All three Commonwealth Centrex systems are connected with special high capacity circuits called T1 lines. Each T1 can handle 24 simultaneous calls. The T1 lines enable the three Centrex systems to operate as one.

CALLING POLICIES

Policy on Personal Telephone Calls

Making personal telephone calls from Commonwealth telephones is prohibited. A personal telephone call is one having no direct or indirect bearing on the business of the Commonwealth of Massachusetts. Therefore, making personal telephone calls during working hours should be restricted to those instances where absolutely necessary. When such occasions arise involving toll calls, employees shall reimburse the agency for the long distance telephone charges. These charges appear on your agency's telephone bill from either New England Telephone or the Centrex User Sensitive Bill (USB). This bill reflects charges for every Centrex line, including all toll calls, and it is sent to each agency on a monthly basis by the Office of Management Information Systems. (Please refer to Section III for more information regarding the User Sensitive Bill.)

TOLL FRAUD

Toll Fraud has, unfortunately, become a very serious threat to business today as well as an industry unto itself. Thieves who steal calling card numbers, 800 numbers or long distance calling from business today are operating as businesses themselves selling their illegal access numbers on computer bulletin boards and in public places such as train stations or airports. Toll Fraud will cost businesses in this country hundreds of millions of dollars this year alone. Your Agency may be one of them.

What is Toll Fraud?

Toll Fraud is any unauthorized use of your telephone lines, calling cards or equipment by parties outside of your business. Toll Fraud comes in many forms. One of the most popular forms is the unauthorized use of an individual's calling card number. Thieves obtain these numbers by watching callers use their cards in public places, listening for individual's speaking their numbers to an operator or actually stealing calling cards from the mail. Once these calling card numbers are obtained, they are "sold" to other individuals who use them to make illegal calls, most of which are international calls. Before you even realize that your calling card is compromised, thousands of dollars worth of calls have been made. Fortunately, most of the major telephone companies and long distance carriers have warning systems in place so that if an unexpected rise in calling appears on a calling card, they will automatically shut the card off.

Another form of toll fraud is the unauthorized use of your telephone lines. This is done when an outside caller gains access to your system and is able to dial an access code (i.e., "8" or "9") to obtain an outside line. He can then sell the procedure for accessing the system to other callers. Access to your system can be obtained through a feature called Direct Inward System Access (DISA), through your automated attendant system and even through your voice mail system. Once these callers have an outside line from your system, they can call for hours and you may never know until your next telephone bill comes in the following month. By then, thousands of dollars in fraudulent calls have been made.

The final form of Toll Fraud involves the unauthorized use of your telephone equipment. This is usually associated with voice mail whereby a caller reaches your voice mail system, discovers your system

manager's code and begins to partition the system for their own use. One company in Connecticut found that 50% of its voice mail system was being used by unauthorized users who "bought" mailboxes and used the system to pass credit cards numbers between users and other illegal users. The added problem for this company was that the illegal users where accessing the voice mail system via their 800 line so that the company was also paying for the thieves calls.

Toll Fraud is serious business. The FBI has set up special units to handle this new "computer crime" and violators are being punished under newer and stricter laws. However, this may not be enough to protect your agency. **Recent court decisions have placed the responsibility for the payment of these illegal bills on the customer.** To help assist customers prevent toll fraud, all of the major carriers (AT&T, MCI, Sprint, etc.) have established Toll Fraud departments and policies.

What Can I Do?

These are some of the steps that your agency can take to help prevent Toll Fraud. Please contact your equipment vendor for additional information, ideas and assistance.

Disconnect all DISA ports on your telephone system. This feature is not of substantial use today as callers from "the road" can use calling cards.

Ensure that all remote maintenance ports on your system are password protected with passwords of at least 10 digits. Check with your vendor and insist on this type of protection. Check with your equipment vendor and discuss who has access to this remote port and how often the password is changed for security. (We've seen some technicians actually write the password on the wall of the telephone room so they remember it on their next maintenance visit.)

Instruct users of calling cards on how to correctly use the card "on the road" so that it is more difficult for unauthorized individuals to obtain their numbers. Make sure that any card that is lost or stolen is reported **immediately** so that the card can be canceled. It only takes a few minutes for the card number to be distributed to a number of people. If you believe that your calling card number has been compromised, cancel it! It takes a few minutes and a new one can be obtained in days.

Do not have multiple people using the same calling card number. This results in loss of control of the number and can easily lead to unauthorized use.

If you have no need for international calls, make sure that your telephone system is programmed to disallow these calls. A very large majority of toll fraud calls are made to other countries, the most popular being the middle east, central America and Puerto Rico. The Commonwealth's Centrex system is programmed to not allow international calling for this purpose. In the past, various agencies have experienced unauthorized international toll calls.

Instruct your receptionist and others who answer your telephone lines to **never** give access to an outside line to a caller. This is especially true if the caller claims he/she is calling from the "telephone company" and needs to test your lines. The telephone company **does not** need your receptionist to provide dial tone to check the lines.

Ensure that all users of your voice mail system have placed personal passwords on their mailboxes and that they do not share these passwords with anyone. Once a "hacker" is in your system via one level of password, it is practically guaranteed that he will be able to find a way to access other areas of your system.

Ensure that your equipment vendor has protected all system administration, remote access and system manager functions in your voice mail system with passwords that are known only to the proper personnel in your office.

Have your equipment vendor make sure that there is no way for a caller to your automated attendant system to dial "9" as an extension number and receive an outside line. You would be surprised how many systems allow this function as a default. It must be actively removed or programmed out of the system.

Toll Fraud is now a fact of business life. It will not disappear. As more and more sophisticated systems are introduced to combat this crime, hackers and other criminals come up with ways to bypass them. It is only through common sense, preparation and diligence that we can keep the agencies and departments of the Commonwealth from becoming a victim of these crimes.

Important Telephone Numbers and Centrex Information to Remember

Reporting Telephone Troubles 617-727-3940

Please call 617-727-3940, the Telecommunications Repair Line, to report telephone related troubles. Be prepared to provide the following information:

- * Your name
- * Your agency name
- * Telephone number where you can be reached
- * Main telephone number associated with the number having a problem
- * A brief description of the problem

Requesting Moves, Adds or Changes to Your Centrex Lines 617-727-8621

Please call 617-727-8621, the Telecommunications Line for Moves, Adds and Changes (MACs), if you plan to do any station activity. It will be necessary to fill out a New England Telephone Requisition form with the following information:

- * Your name
- * Your agency name
- * Telephone number where you can be reached
- * Billing telephone number
- * A brief description of your request

Reaching New England Telephone (BCSC: 617-743-4588)

New England Telephone has assigned a special department to interface with Commonwealth agencies. This group (BCSC) maintains a main telephone number that can be dialed 24 hours-a-day. If you are experiencing a service emergency after hours or need to reach someone at New England Telephone, you can reach the BCSC at 617-743-4588.

Reaching a Commonwealth Operator (Dialing "0" or 617-727-2121)

The Bureau of Network Services has dedicated telephone operators to answer and process calls from the general public as well as offer assistance to Centrex users. If you dial "0" on your Centrex line, you will not reach an outside operator but rather one of the Commonwealth's Centrex Operators. Should you

need assistance with placing an outgoing call, the Commonwealth Centrex Operators will be able to help you.

The general public or Commonwealth employees that are not users of the Centrex system can reach the Commonwealth operators by dialing (617) 727-2121.

Long Distance Authorization Codes

In order to place an outgoing long distance call outside of Massachusetts, you are required to enter an authorization code. (This code is six digits long in Boston and five digits long in Worcester and Springfield.) After dialing your desired long distance number, you will hear a short beep which will indicate that the system is waiting for your authorization code. The Centrex system will not allow you to place your call without this code.

These authorization codes are different for each agency or unit within an agency. Please contact the person responsible for your telephone system to obtain your agency's authorization code.

International Calling

The Commonwealth's Centrex system does not allow agencies to directly place international calls. In order to place international calls, authorized by your agency head, dial "0" to reach the Centrex Operator and be prepared to provide the operator with your name, your agency, your telephone number and the international number you desire. The Centrex Operator will then place the call for you and transfer the call to your Centrex number.

Credit/Calling Card Calling

Individuals who wish to use personal calling cards or those who are at another agency and wish to use an agency calling card, may do so by dialing the special 800 number provided by your calling card vendor. (The usual manner for placing calls requires that a "0" be dialed but if you dial "0" from a Centrex line, you will reach the Centrex Operator who will not be able to place your calling card call.)

Each vendor provides an 800 number to access their system. The directions for using your calling card with their 800 number will be provided with your calling card. The following are the 800 numbers of the major carriers:

AT&T	1-800-321-0288
MCI	1-800-950-1022
Sprint	1-800-877-8000
New England Telephone	For Calling Cards issued by the Commonwealth, try AT&T first.

Agency Telephone System and Line Types

In order to make use of the Centrex service, each agency of the Commonwealth must have telephone equipment installed at their location. This telephone equipment can be in the form of a Single Line Telephone (similar to your home telephone), a Key Telephone System with Multi-Button Telephones, or a large PBX system with both Single Line and Multi-Button Telephones. In every case, Centrex provides the agency with the ability to reach the outside world as well as other agencies within the Commonwealth.

Agency Line Types

To understand the types of telephone equipment used by the Commonwealth's agencies, we must first look at some of the various line services available from New England Telephone. Three types of line services (in addition to residential lines) are available to the Commonwealth agencies. These are:

- Normal business lines

- Centrex lines

- Trunks of various kinds including Direct-Inward Dialing (DID) trunks, tie lines, and others.

Normal Business Lines are offered to business customers and are priced at the present tariff rates by New England Telephone. These lines are used for making outgoing calls or receiving incoming calls and can be used by small or large customers alike.

Centrex Lines are an enhanced business line service that allows for special features and lower (bulk rate) line costs.

Business Trunks are a special type of business line commonly associated with larger customers. Trunks are engineered by New England Telephone for the specific purpose they will service. For example, Direct-Inward-Dialing (DID) trunks are specifically designed for incoming calls only and for large volumes of these calls; Tie Lines are designed to connect two large telephone systems (PBXs) together so that they can operate as if one system.

Agency Telephone System Types

The agencies connected to the Centrex system can use several distinct types of equipment:

Single Line Telephones

Key Telephone Equipment

PBX Equipment with Centrex Lines Only

PBX Equipment with Tie Lines to Centrex

The characteristics of these systems are summarized in the following chart and described in more detail later in this section.

TELEPHONE EQUIPMENT TYPES	DESCRIPTION
Single Line Telephone (Resembles Home Telephone)	<ul style="list-style-type: none">* Handles only one line.* Centrex line typically rings at user's desk.* Used by smaller agencies or behind large PBX systems.
Key Telephone Systems (Has Special Features/Buttons)	<ul style="list-style-type: none">* Allows for multiple lines and typically serves from 2 to 70 users. Has features such as INTERCOM, TRANSFER, HOLD and SPEED DIALING.* Used by small to mid-sized agencies.
PBX System with Centrex Lines	<ul style="list-style-type: none">* All lines typically answered by receptionist or automated attendant.* Allows Centrex line to ring at users desk.* Uses single line and multi-line Telephones.* Used by mid-size to large agencies.
PBX System with Tie Lines (Tie Lines are High Quality circuits that connect one PBX to another PBX or to the Centrex system.)	<ul style="list-style-type: none">* Uses the connection to Centrex to make outgoing calls (typically long distance).* Uses other regular lines or Direct-Inward-Dialing (DID) lines for incoming calls.* Used by larger agencies.

Single Line Telephones

The Single Line Telephone handles only one line and usually resembles a normal home telephone. It does not typically provide buttons such as HOLD or INTERCOM and the Centrex line (727-XXXX) typically rings right at the user's desk. In order to transfer the call, the user must press the "switch hook" (or transfer button) and dial the Centrex number to which the caller will be transferred.

Many smaller agencies (those with one, two or three lines) use Single Line Telephones. Other larger agencies may use Single Line Telephones in areas such as conference rooms.

Key Telephone Systems

Key Telephone Systems are small systems that allow for multiple lines to appear on each telephone in the system. Key Telephone Systems range from "1A2" mechanical systems (older telephones with only HOLD and INTERCOM) to feature rich electronic key systems such as the AT&T Merlin, ISOETEC, Panasonic and Tie Communications.

The most distinct feature of Key Telephone Systems is the use of multi-button telephones which allow for multiple Centrex lines on one telephone.

PBX System with Centrex Lines Only

A PBX is usually found at a large agency. All Centrex lines converge and are answered by a receptionist or, in some cases, by an automated attendant who prompts you for the extension number you wish to reach. A PBX system also allows for Centrex lines to ring directly at the desk. Users of a PBX system can use either Single Line Telephones or multi-button telephones. They usually have an internal extension number instead of a Centrex number (i.e, Extension 123, etc.).

PBXs are manufactured by vendors such as AT&T, ROLM, Mitel, Lexar System, NEC, and Siemens among many others.

PBX Equipment with Tie Lines to Centrex

Some agencies are using a PBX system similar to the systems previously described but connect to Centrex in a different manner. These agencies connect their PBX to the Centrex via "Tie Lines." A Tie Line is a high quality circuit provided by New England Telephone and is used to link two large telephone systems together, in this case, the PBX and the Centrex system. With this Tie Line connection, users can still call other agencies connected to the Centrex, use the Centrex to make long distance calls and receive calls from other agencies. In addition, these agencies have regular outside lines to allow for callers from the outside to reach them.

Telephone Equipment Summary

Typically, all of the agencies using Centrex will fall into the four categories listed above. Your agency may make use of one or more of the equipment options (i.e., Single Line Telephones and Key Telephone Equipment) or may simply use only part of a PBX sharing the system with another agency. The common factor among agencies is the connectivity provided by Centrex.

Purchase of New Equipment

To assist agencies with the purchase of new telephone equipment, the Department of Procurement and General Services (DPGS), Bureau of Information Technology Acquisition (BITA), has awarded blanket contract status to various telecommunications companies capable of meeting the needs of the Commonwealth's various agencies. These systems include key systems and PBX equipment.

The Bureau of Network Services (BNS), having responsibility for the Commonwealth's Centrex system, will be happy to work with DPGS and you in the selection of a new telephone system. If your agency is in the process of purchasing a new telephone system, please contact DPGS for assistance with this process.

Making Calls With Centrex

How you place a call depends on what kind of telephone system you have. Agency telephone systems are differently configured but in order for you to understand how a call is made, the following will provide you with some insight. (To learn exactly how to place a call, please consult the person responsible for your telephone system at your particular agency.)

TELEPHONE TYPE	CENTREX CALLING (Note 1)	LOCAL CALLING	LONG DISTANCE
Single Line Telephone	1. Dial last five digits of the telephone number.	1. Dial "8" 2. Listen for dial tone. 3. Dial the 7 digit number	1. Dial "8" 2. Listen for dial tone 3. Dial "1" plus the number 4. At the stutter tone, enter your authorization code
Key Telephone Systems	1. Pick up your Centrex line. 2. Dial last five digits of the telephone number.	1. Pick up your Centrex line. 2. Dial "8" 3. Listen for dial tone. 4. Dial the 7 digit number	1. Pick up your Centrex line. 2. Dial "8" 3. Listen for dial tone. 4. Dial "1" plus the number. 5. At the stutter tone, enter your authorization code.
PBX System with Centrex Lines	1. Dial access code to make an outside call. 2. Listen for dial tone. 3. Dial last five digits of the telephone number.	1. Dial access code to make an outside call. 2. Listen for dial tone. 3. Dial "8" 4. Listen for dial tone. 5. Dial the 7 digit number	1. Dial access code to make an outside call. 2. Listen for dial tone. 3. Dial "8" 4. Listen for dial tone. 5. Dial "1" plus the number. 6. At the stutter tone, enter your authorization code.
PBX System with Tie Lines to Centrex (Note 2)	1. Dial the Centrex access code (i.e. "7"). 2. Listen for dial tone. 3. Dial last five digits of the telephone number	1. Dial the access code to make an outside call 2. Listen for dial tone. 3. Dial the 7 digit number	1. Dial the Centrex access code (i.e. "7"). 2. Listen for dial tone. 3. Dial "8" 4. Listen for dial tone. 5. Dial "1" plus the number. 6. At the stutter tone, enter your authorization code.

Note 1: This five digit dialing plan is only for reaching another Centrex number within the Boston node (727-XXXX). If you are in Worcester or Springfield and wish to reach another user within your Centrex node (792-XXXX or 784-XXXX) you need to dial only the last four digits of the telephone number. To dial a Centrex line outside of your node, dial the full number including area code if applicable.

Centrex Calls within Your Node

If you wish to reach another user within your Centrex node (Boston, Worcester or Springfield), you must first access the Centrex system. This is dependent on your telephone equipment. For example, if you have a Single Line Telephone and are directly connected to a Centrex Line, then you simply pick-up your telephone receiver and have dial tone from the Centrex system. At this point, you simply dial the last five digits of the Centrex number. (If you are in the Worcester or Springfield node, you must dial the last four digits of the telephone number.)

If you have a key system (with multi-button telephones), press the Local Line Key, listen for dial tone and then dial the last five digits of the Centrex number. (In Worcester and Springfield node, the last four digits.)

If you have a PBX system, you must first dial a Local Line Access Code (usually this is a "7" or a "9"), listen for dial tone and then dial the last five digits of the Centrex number. (In Worcester and Springfield node, the last four digits.)

Centrex Calls to Another Node

If you wish to reach another Centrex user who is not within your node (i.e., doesn't have the same three digit exchange as you do [727, etc.]). You must access the Centrex system (see above) and dial "8". Once you hear dial tone again, dial the full telephone number (1 + area code + number). The Centrex system will route this call to the correct number.

Local Calls

To place a local call, you must first access the Centrex system (See above). As indicated above, once you have accessed the Centrex system whether from a key telephone system, Single Line Telephone or PBX, you must dial a single digit access code which is "8". By dialing this code, the Centrex system knows that you wish to make a call and then provides you new dial tone so that you can dial. Once you have dialed your desired number, the software feature known as **Least Cost Routing** looks at the number and decides which is the most cost effective way to make that call. In the case of a Local Call (Boston area, Worcester area or Springfield area), the system then routes the call locally and then bills the call at a local per minute rate.

Long Distance Calls

(Within Eastern or Western Massachusetts)

A call to any town/city located within Eastern or Western Massachusetts (depending on your location) is placed in the same manner as a local call with the addition of a "1" (and possibly the area code if necessary). The Least Cost Routing feature of the Centrex then looks at the number you dialed and determines the best manner in which to place the call. This may be to make the call as a regular toll call or it may be to route the call over one of the many Foreign Exchange (FX) lines that are part of the Centrex system. (An FX line is a special line from a city or town that is installed in a telephone system that is located in another city or town. Thus, a Lowell line installed into the Boston Centrex system is considered a Lowell FX line. A Pittsfield line installed into the Springfield Centrex is a Pittsfield FX Line. The use of FX lines help to reduce the cost of long distance calling for Commonwealth Centrex users.)

Long Distance Calls to Eastern/Western Massachusetts

Placing a call from Eastern Massachusetts to a city or town in Western Massachusetts (or vice versa) is done in the same manner as a local call within your area code. The Least Cost Routing (LCR) feature of the Centrex will then route that call to the Centrex system (Boston, Worcester or Springfield) which is closer to the desired city or town, and then place the call in the most cost effective way.

Long Distance Calls Outside Massachusetts

If you are calling outside of Massachusetts to the Continental U.S., you will place your call in much the same ways as an in-state call. However, once you have dialed your number, the system will beep and present you with silence. This is the prompt to enter your authorization code. Once you have entered this code, the Least Cost Routing (LCR) software will route the call to one of the long distance companies that are presently being used by the Commonwealth.

The Centrex system will not allow a long distance call outside of Massachusetts without a valid authorization code. These codes allow us to reduce the chance of toll fraud by allowing only authorized personnel to make calls and enable each agency to track its outgoing long distance calls. Please contact the person responsible for your telephone system for your agency authorization code.

The Cost of Calling

The person who first said "The Best Things in Life Are Free" never had to pay his or her own telephone bill. In the past, bulk discount services such as WATS and 800 service led users to believe that making telephone calls was actually free or close to it. Nothing could be further from the truth. The reality of the situation is that every time you place an outgoing call other than to an 800 number, you pay for it.

There is one exception to this. The Centrex system installed for the Commonwealth is designed to help reduce some of the cost associated with outgoing calls. It does so, mainly, by allowing any agency connected to the Centrex system to call any other agency connected to the Centrex system at no additional cost other than the fixed monthly cost for the Centrex line. This reduces the need for placing local and long distance calls from agency to agency.

The Centrex system also helps reduce costs by allowing for volume discounts from the long distance vendors. By having all Centrex system users place all their out-of-state long distance calling as "one customer", a deeper discount is achieved than would be available to each agency independently.

Monthly Service Costs

Despite the cost saving measures described above, your agency will still have to pay monthly telephone costs. Monthly telephone costs are divided into two categories. These are the basic monthly service charge and the monthly usage charge.

The **Basic Monthly Service Charge** is the cost you pay each month for the Centrex line you are using. This cost is fairly stable so that you can expect to pay the same amount each month for access to New England Telephone service. (This cost, however, is susceptible to New England Telephone rate increases which must be filed with the Department of Public Utilities.)

The **Monthly Usage Charge** is the cost for the outgoing telephone calls that you make. Your agency can expect to pay for most, if not all, outgoing calls made. These outgoing calls include:

- Local Calls

- Long Distance Calls (Within Massachusetts)

- Long Distance Calls (Outside Massachusetts)

- Directory Assistance Calls (Outside Massachusetts)

The chart on the following page summarizes the cost associated with each type of call. For further detail, refer to the section following the chart.

Types of Telephone Calls

TYPE OF TELEPHONE CALL	DESCRIPTION
Centrex Calls	Calls from one Centrex number to another Commonwealth Centrex number are free.
Local Calls	<p>All local calls in Boston and Springfield are billed based on the length of the call.</p> <p>The higher the number of local calls, the higher the monthly charges for these calls.</p> <p>These calls are carried and billed by New England Telephone via the Centrex USB.</p>
Directory Assistance Calls (411 and 555-1212) (Within Massachusetts)	New England Telephone does not charge the Commonwealth for Directory Assistance or Information calls within Massachusetts.
Directory Assistance Calls (Area Code + 555-1212) (Outside Massachusetts)	Each call to directory assistance outside of Massachusetts will cost \$.65 per call. These charges can begin to accumulate in cost if many calls are made by your agency.
Long Distance Calls (Within Massachusetts)	<p>All long distance charges are based on the distance the called location is from your agency and are billed by the minute.</p> <p>Calls from one Commonwealth Centrex Line to another Commonwealth Centrex number do not incur any charges.</p> <p>These calls are typically carried and billed by New England Telephone via the Centrex USB.</p>
Long Distance Calls (Outside Massachusetts)	<p>Calls to locations outside Massachusetts are billed by the minute based on the distance the called location is from your agency.</p> <p>Long distance calls outside Massachusetts are billed at a higher rate than those inside the state.</p>

Local Calls: Although local calls are generally free from your home telephone, every business customer in Boston and Springfield are charged for every local call made. This charge is based on the length of the call and the town/city you are calling. Because of the nature of your agency's business, you may be placing many local calls during the month resulting in high monthly charges.

Long Distance (Inside Massachusetts): Long distance calls within the state are billed by the minute based on the distance of the called location from your office. Although New England Telephone have decreased their rates over the past few years, the day rate for long distance calls continues to be a major expense for all business customers. Based on these costs and the high volume of calling between agencies, the use of the Centrex system to call from agency to agency is helping to reduce monthly costs dramatically.

Long Distance (Outside Massachusetts): As with in-state long distance traffic, calls to locations outside of Massachusetts are billed by the minute and this per-minute rate is based on the distance that the called party is from your location. Long distance calling outside of Massachusetts is billed at a higher per-minute rate than long distance within the state.

Directory Assistance Calls: Calls made to Directory Assistance within the Commonwealth are not charged to the agencies. However, calls to Directory Assistance outside of the Commonwealth (Area Code + 555-1212) are charged by the Commonwealth's long distance carrier. These calls currently cost sixty five cents (\$.65) per call and can begin to add up during the month. New England Telephone Directories (Phone Books) as well as those for locations outside of the Commonwealth that you call frequently should be used as often as possible.

Free Calls

Despite the charges listed above, the Centrex system does provide for some calls to be made free. These calls are those made from one Centrex number to any other Centrex number in the Commonwealth. Thus, a call from a Boston Centrex line (617-727-XXXX) to a Springfield Centrex line (413-784-XXXX) would not incur a per minute toll cost but would be considered an internal Centrex call and not billed at all.

The chart on the following page summarizes the free calls from each Centrex node.

THE VARIOUS TYPES OF FREE CENTREX CALLS

YOUR TELEPHONE NUMBER

FREE CENTREX CALLS

	Boston Centrex Node (727-XXXX) DIAL: 7 Plus Four Digits
Boston Centrex Node (617-727-XXXX)	Worcester Centrex Node (508-792-XXXX) DIAL: 1 Plus Full Number
	Springfield Centrex Node (413-784-XXXX) DIAL: 1 Plus Full Number

	Worcester Centrex Node (792-XXXX) DIAL: Last Four Digits
Worcester Centrex Node (508-792-XXXX)	Boston Centrex Node (617-727-XXXX) DIAL: 1 Plus Full Number
	Springfield Centrex Node (413-784-XXXX) DIAL: 1 Plus Full Number

	Springfield Centrex Node (784-XXXX) DIAL: Last Four Digits
Springfield Centrex Node (413-784-XXXX)	Boston Centrex Node (617-727-XXXX) DIAL: 1 Plus Full Number
	Worcester Centrex Node (508-792-XXXX) DIAL: 1 Plus Full Number

REDUCING COSTS

The expense associated with telephone calling from each agency can be controlled with common sense and a few smart tactics. The following section will help you to understand that there are hidden expenses in your telephone bill that can only be controlled by you. Keep in mind a few helpful hints.

- 1) **Reduce the number of unnecessary local calls made.** This includes personal calls, calls to restaurant for daily specials and multiple calls to vendors or other businesses.
- 2) **Take advantage of 800 numbers.** Most vendors will provide you with an 800 number although you may have to ask first. Other companies that you do business with may also provide you with an 800 number on request. 800 numbers are toll free for the caller but not for the called party therefore some companies are not as willing to provide them without you first requesting it. You may wish to try 800 directory assistance (800-555-1212) if you believe a company you are calling may have an 800 number.
- 3) **If you arrive early or work late, take advantage of reduced rates after 5:00 p.m. and before 8:00 am.** This may be especially helpful if you are dealing with individuals or companies in another time zone. This may also be ideal if you know that the party you are calling has a voice mailbox. This way, you can leave a detailed message for the person and still take advantage of off-hour rates. Although the Centrex bill does not charge users a reduced rate at off hours, these calls are less expensive for the Commonwealth.
- 4) **Avoid all 900 numbers or numbers with a 976 or 550 exchange.** These calls are always charged a fee and some may be as high as \$25.00 per call. Presently, the Centrex system is designed to block all calls to these numbers thereby eliminating potential abuse and expense.
- 5) **Avoid using Directory Assistance.** Calls to Directory Assistance (Out of State) cost \$.65 each. Use your New England Telephone Directory as often as possible. If you find your agency calls a certain area often, you may wish to order a Directory for that area from New England Telephone.

All in all, **think before you dial.** Maybe a call should wait until later in the day because you know you will be calling that same number for different information throughout the day. Maybe a call doesn't necessarily have to be returned because the calling party is "on the road" and will call you back.

Finally, please review your telephone bill and keep track of how your toll and local usage may rise and fall from month to month so that as you go through your daily routine, you may find additional ways to reduce the high usage that your agency may be experiencing.

The chart on the following page summarizes the items detailed above. You may wish to make copies of this page and distribute it within your agency to ensure that everyone is "Thinking Before They Dial".

REDUCING TELEPHONE USAGE COSTS

ACTION TO TAKE	DESCRIPTION
Place Centrex Calls Correctly	Do not Dial "8" to place a call to another Centrex number. (Refer to Cost Charts)
Reduce Unnecessary Local Calls	Includes personal calls, calls to restaurants for daily specials and multiple calls to vendors or other businesses.
Take Advantage of 800 Numbers	Most vendors have 800 service. Ask for the number from vendors you deal with frequently Dial 800 Directory Assistance to find a company's 800 number (1-800-555-1212).
Take Advantage of Reduced Rates	Ideal if you arrive early or leave late. Ideal if desired party is in another time zone. Ideal if you need only leave a message and the called party has voice mail.
Avoid all 900 numbers or those with a 976 or 550 exchange	These calls are always billed a higher rate, some as high as \$25.00 per call. The Centrex system is programmed in such a way as to prevent these calls from being made
Review your monthly bill	Watch to see if your usage expense is growing to quickly or is too high for one particular month. Watch for 900 numbers or those with 976 or 550 exchanges to ensure that none of these calls have "slipped through" the system.

YOUR MONTHLY TELEPHONE BILL

Reading Your Monthly "Usage Sensitive Bill"

Every month, your agency receives an internal telephone bill from OMIS. This bill provides your agency with the monthly charges for Centrex lines, an itemized list of toll calls and the number and cost of local calls.

This bill allows your agency to see the monthly charges associated with each Centrex line at each location. The following pages provide you with an example of this monthly "Usage Sensitive Bill". Further detailed explanation of the items on this bill are included as well.

Please note that current and actual rate information is available from the Bureau of Network Services.

INDIVIDUAL STATION LONG DISTANCE CALL DETAIL FOR BILLING TELEPHONE NUMBER - 617-727-0123

PERIOD STARTING - MAY 16, 1992 AND ENDING - JUNE 22, 1992

ACTIVITY NUMBER - XXXXXXXXX

RESERVATION NUMBER - 2

OBJECT CODE - 001

SUBSIDIARY - 1

AGENCY CODE - 001

NAME - WATER WAYS COMMISSION

1

ADDRESS - 100 CAMBRIDGE STREET

ROOM - 201

CITY - BOSTON

ZIP CODE - 021080000

TOLL DETAIL											
5		6		7		8		9			
EXTENSION	DATE	TIME	NUMBER CALLED	DESTINATION	AUTH. CALL ORIGINATING FROM	USER ID	DURATION	COST	ACCOUNT CODE	CALL TYPE	
617-727-0000	05-23	09:09 AM	508-555-3690	PLYMOUTH MA			4.4	.79		DDD	
617-727-0000	05-24	11:08 AM	508-555-9876	LAWRENCE MA			14.7	2.65		DDD	
SUB TOTAL						CALLS	2	19.1	3.44		

NETWORK DETAIL											
EXTENSION	DATE	TIME	NUMBER CALLED	DESTINATION	AUTH. CALL		DURATION	COST	ACCOUNT CODE	CALL TYPE	
					ORIGINATING FROM	USER ID					
617-727-0000	05-23	02:53 PM	508-555-1234	LOWELL MA			3.2	.42		F-X	
617-727-0000	05-24	10:04 AM	202-555-0123	WASHINGTON DC			3.3	.50		F-X	
617-727-0000	05-24	03:52 PM	413-555-8520	SPRINGFLD MA			1.0	.13		F-X	
617-727-0000	05-25	09:32 AM	202-555-8456	WASHINGTON DC			.8	.12		WATS	
					10						

LOCAL CALLING EXTENSION		11		10	
LOCAL CALLS	MINUTES	AMOUNT	SUB TOTAL	CALLS	AMOUNT
617-727-0000	186	459	36.42		

EQUIPMENT STATION		12	
DESCRIPTION	COUNT	AMOUNT	SUB TOTAL
617-727-0000	1	16.00	16.00
CENTREX LINE OR STATION		1	16.00

Explanation of Annotated Items

1. The Agency name and address where the Centrex lines are installed.
2. **Billing period.** This usually consists of a five week period allowing for all vendors' billing to be included.
3. **Billing Telephone Number.** This is the main number at the location listed in #1 above. Additional Centrex lines (numbers) may also be included under this one billing number. This billing number is also the number used for reference when calling for additional information.
4. **Extension (Toll Detail).** This is the telephone number (Centrex Line) that placed the outgoing call. In some cases, a number of Centrex lines are part of a hunting arrangement. This means that incoming calls are placed to one number at the agency and subsequent calls automatically "roll over" or hunt to another Centrex line. Under these circumstances any outgoing calls made from Centrex lines which are part of a hunt group will be billed to the first Centrex line in the group. This causes some Centrex lines to appear to have no usage (outgoing calls) during the month.
5. **Date/Time.** This is the date and time when the outgoing call was made. You may notice that several calls billed to a particular Centrex line start at the same time. This is because all outgoing calls made from Centrex lines in a hunt group (See #4 above) are billed against the first number in the hunt group so it appears that more than one call was made over the same Centrex line at the same time.
6. **Number Called/Destination.** This is the number dialed and the city/town where the dialed number is located.
7. **Duration.** This is the length of the outgoing call provided in minutes.
8. **Cost.** This is the cost of the call based on its destination and length of call.
9. **Call Type.** This classification allows you to see how the call was placed over the Centrex system. These types are provided for both calls made within Massachusetts and those made outside of Massachusetts. The Call Types are provided as follows:

DDD	Standard Toll Call for in-state call. For calls placed to numbers outside of Massachusetts, this classification indicates that the call was placed over one of the Commonwealth's long distance carriers.
F-X	Call Routed over the in-state Foreign Exchange Network (For calls placed to numbers outside of Massachusetts, this classification indicates that the call was placed over one of the Commonwealth's long distance carriers.)
WATS	For calls placed to numbers outside of Massachusetts, this classification may also be used.
TIE	For calls placed outside of Massachusetts, this classification may also be used.

It is important to note that these classifications are retained for historical and traffic analysis reasons only. In the past these types of calls also had different costs associated with them, however, recent New England Telephone and long distance telephone company tariff changes have resulted in a common pricing scheme for all types of outgoing calls on the Commonwealth Centrex system.

10. **Sub Total Calls.** This is the sub total for all calls fitting this Call Type classification.
11. **Local Calls.** This item provides the number, duration and cost of local calls placed during the billing month. These calls are those made to your local calling area (Boston and Springfield.) Worcester local calls are provided by New England Telephone's Full Business Service and therefore do not incur a charge.
12. **Equipment Station.** This is the basic monthly charge for the Centrex line(s) installed at the location indicated in #1 above. This charge is for the Centrex line and any ancillary charges for connecting to the Boston, Worcester or Springfield system, if your agency is located outside of these areas (i.e., Brockton, Fall River, Pittsfield, Lawrence, etc.) This is a relatively fixed charge but is susceptible to New England Telephone rate increases.

BTN BILLING SUMMARY

Including with your monthly "Usage Sensitive Bill" is a billing summary page. This billing summary provides you with a compilation of all costs associated with the main billing telephone number. Included in the summary is the Centrex number, the number and cost of long distance calls made (under the heading NETWORK and D.D.D.), the basic monthly service charge (under the heading EQUIPMENT) and the number and cost of local calls (Boston and Springfield only). The total cost associated with each Centrex line is also provided.

This summary page allows you to simply and quickly review your monthly service charges (those basic charges that remained unchanged) and your monthly usage charges (local and long distance calls).

Keep in mind, as you review this summary page, that usage on those Centrex lines included in a "hunt group" (where incoming calls come in on one number but "roll over" to the next available line) are billed to the main Centrex number (the number that is called). This accounts, in most cases, for Centrex lines that do not show any usage. (This situation would also occur if the Centrex lines were being used for incoming calls only.)

3

BTN BILLING SUMMARY

1

REPORT FOR BILLING TELEPHONE NUMBER - 617-727-0123

AGENCY CODE - 001

NAME - WATER WAYS COMMISSION

PERIOD STARTING - MAY 16, 1992 AND ENDING - JUNE 22, 1992

2

ACTIVITY NUMBER - XXXXXXXXX

RESERVATION NUMBER -

OBJECT CODE - 001

5

SUBSIDIARY - 1

ADDRESS - 100 CAMBRIDGE STREET

ROOM - 201

CITY - BOSTON

ZIP CODE - 021080000

9

10

4

NETWORK

7

8

EXTENSION

CALLS

MINUTES

AMOUNT

OTHER

CHARGES &

CREDITS

EQUIPMENT

CALLS

D.D. D.

AMOUNT

LOCAL CALLS

AMOUNT

TOTAL COST

617 727-0001

11

59.1

8.21

44.50

12

1.98

54.69

617-727-0000

610

1813.9

244.10

75.10

6

1.82

42.16

308.08

617-727-0002

585

1727.0

230.38

20.00

4

2.30

41.09

293.77

11

BTN

TOTAL

1206

3600.0

482.69

139.60

10

4.12

85.23

656.54

Explanation of Annotated Items

1. **The Agency name and address where the Centrex lines are actually installed.**
2. **Billing period.** This usually consist of a five week period allowing for all vendors' billing to be included.
3. **Billing Telephone Number.** This is the main number at the location listed in #1 above. Additional Centrex lines (numbers) may also be included under this one billing number. This billing number is also the number used for reference when calling for additional information
4. **Extension.** This is the telephone number (Centrex Line) that placed the outgoing calls that are summarized. In some cases, a number of Centrex lines are part of a hunting arrangement. This means that incoming calls are placed to one number at the agency and subsequent calls automatically "roll over" or hunt to another Centrex line. Under these circumstances any outgoing calls made from Centrex lines which are part of a hunt group will be billed to the first Centrex line in the group. This causes some Centrex lines to appear to have no usage (outgoing calls) during the month.
5. **Network (Calls, Minutes, Amount).** These three columns contain the total number of calls, the total duration of those calls (in minutes) and the cost of these calls made over the Centrex Line (Extension) listed to the left. These calls are those that were routed via the Centrex system or Foreign Exchange (FX) network. Please remember that the Network or DDD (See #8) classification is retained for historical and traffic analysis reasons. Although in the past these types of calls also had different costs associated with them, recent New England Telephone tariff changes have resulted in a common pricing scheme for all types of outgoing calls on the Commonwealth Centrex system.
6. **Other Charges & Credits.** Charges that appear under this category are typically one-time (non-recurring) charges. These charges can be for the move of a Centrex line, the installation of a Centrex line, etc.
7. **Equipment.** This is the basic monthly charge for the Centrex line(s) installed at the location indicated in #1 above. This charge is for the Centrex line and any ancillary charges for connecting to the Boston, Worcester or Springfield system, if your agency is located outside of these areas (i.e., Brockton, Fall River, Pittsfield, Lawrence, etc.) This is a relatively fixed charge but is susceptible to New England Telephone rate increases.
8. **DDD (Calls and Amount).** See Number 5 Above.
9. **Local Usage.** This item provides the total number, total duration and total cost of local calls placed during the billing month. These calls are those made to your local calling area (Boston and Springfield.) Worcester local calls are provided by New England Telephone's Full Business Service and therefore do not incur a charge.

10. **Total Cost.** This figure is the total cost for all items above for each particular Centrex Line.
11. **BTN Total.** This line provides you with the total cost for each item (local calls, equipment, etc.) as well as the total monthly cost for this particular Billing Telephone Number (BTN).

EXCEPTION REPORT

Also included with your monthly "User Sensitive Bill" is an Exception Report. This report provides you with a list of calls that were made during the month that did not fit the "normal" classification.

The billing system defines a "normal" call as one that is made between the hours of 7:00 am and 6:00 p.m., last less than 30 minutes and cost less than \$5.00. If a call exceeds any of these criteria, the system notes it as an exception and notes it in this list indicating why it is an exception (length, cost or time-of-day).

The exception report allows you to quickly identify any possible abuse on the system and also to control lengthy and costly telephone calls. For example, if you do not regularly have anyone in the office after 6:00 p.m. but your exception report lists many calls after that time, you will know that in all likelihood, the calls are unauthorized and you will now be able to identify and correct an abuse problem.

You should review your Exception Report each month. It is designed to help you gain more control over your telecommunications costs and use the system more efficiently. Keep track of possible telephone abuse and check each month to ensure that any abuse corrected the previous month does not re-occur.

EXCEPTION REPORT

3

REPORT FOR BILLING TELEPHONE NUMBER - 617-727-0123

1

AGENCY CODE - 001
NAME - WATER WAYS COMMISSION

PERIOD STARTING - MAY 16, 1992 AND ENDING - JUNE 22, 1992

2

ACTIVITY NUMBER - XXXXXXXXX

RESERVATION NUMBER -

OBJECT CODE - 001

SUBSIDIARY - 1

ADDRESS - 100 CAMBRIDGE STREET

ROOM - 201

CITY - BOSTON

ZIP CODE - 021080000

4 EXTENSION 617-727-0000

7

6

8

9

5

DATE	TIME	NUMBER CALLED	CITY	STATE	CALL TYPE	DURATION	AMOUNT	AMOUNT LENGTH BEFORE AFTER			
								005	030	07-00	18-00
05-22	09:31PM	413-555-1234	SPRINGFLD	MA	F-X	.8	.18				X
05-22	10:27PM	617-111-2222	MEDFORD	MA	F-X	.8	.18				X
05-25	06:56AM	508-555-3210	LOWELL	MA	F-X	1.5	.35			X	
05-30	09:03PM	413-555-1111	SPRINGFLD	MA	DDD	1.5	.35				X
06-02	03:45PM	617-111-5555	WELLESLEY	MA	F-X	23.5	3.82		X		
06-05	05:13AM	508-555-9999	ORLEANS	MA	DDD	1.6	.37			X	
06-06	04:33AM	508-555-1233	FRAMINGHAM	MA	F-X	.8	.18			X	
06-10	08:22PM	617-555-2525	BOSTON	MA	F-X	.5	.13				X
06-13	02:34PM	408-555-2222	MILPITAS	CA	DDD	48.0	10.13		X		

10

AMOUNT OVER	LENGTH	NUMB CALLS	DURATION	AMOUNT	BEFORE	NUMB CALLS	DURATION	AMOUNT	AFTER
		1	48.0	10.13		3	3.9	.90	
		1	23.5	3.82		4	3.6	.84	

Explanation of Annotated Items

1. The Agency name and address where the Centrex lines are actually installed.
2. **Billing period.** This usually consist of a five week period allowing for all vendors' billing to be included.
3. **Billing Telephone Number.** This is the main number at the location listed in #1 above. Additional Centrex lines (numbers) may also be included under this one billing number. This billing number is also the number used for reference when calling for additional information
4. **Extension.** This is the telephone number (Centrex Line) that placed the outgoing calls that are summarized. In some cases, a number of Centrex lines are part of a hunting arrangement. This means that incoming calls are placed to one number at the agency and subsequent calls automatically "roll over" or hunt to another Centrex line. Under these circumstances any outgoing calls made from Centrex lines which are part of a hunt group will be billed to the first Centrex line in the group. This causes some Centrex lines to appear to have no usage (outgoing calls) during the month.
5. **Date/Time.** This is the date and time that the exception call was made.
6. **Number Called/City/State.** This is the number dialed and the city and state in which it resides.
7. **Call Type.** This classification allows you to see how the call was placed over the Centrex system. These types are provided for both calls made within Massachusetts (Intra-State) and those made outside of Massachusetts. (Inter-State) These Call Types are provided as follows:

DDD	Standard Toll Call for in-state call. For calls placed to numbers outside of Massachusetts, this classification indicates that the call was placed over one of the Commonwealth's long distance carriers.
F-X	Call Routed over the in-state Foreign Exchange Network (For calls placed to numbers outside of Massachusetts, this classification indicates that the call was placed over one of the Commonwealth's long distance carriers.)
WATS	For calls placed to numbers outside of Massachusetts, this classification may also be used.
TIE	For calls placed outside of Massachusetts, this classification may also be used.

It is important to note that these classifications are retained for historical and traffic analysis reasons. Although in the past these types of calls also had different costs associated with them, recent New England Telephone tariff changes have resulted in a common pricing scheme for all types of outgoing calls on the Commonwealth Centrex system.

8. **Duration/Amount.** This item provides the length of the call (in minutes) as well as the cost associated with the call.

9. **Amount/Length/Before/After.** These four columns provide the reason why the call is on the exception report. An "X" is placed in one or more of these four columns for each of the calls listed. The description of each column is as follows:

Amount: This column is for calls whose cost exceeds \$5.00.
Length: This column is for calls whose duration (in minutes) exceeds 30 minutes.
Before: This column is for calls that were placed prior to 7:00 am.
After: This column is for calls that were placed after 6:00 p.m..

10. **Summary.** Provided for your review is a total of each type of exception (as described in #9 above) and the total number of calls, their total duration and the total cost for the calls in each exception category.

USING CENTREX FEATURES

The Commonwealth's Centrex system provides various features for your agency. These features, usually associated with a large PBX system, are provided at no additional monthly cost to you. However, the use of these features will depend heavily on the type of telephone equipment that you have installed at your agency. In other words, some (if not all) of the features we will describe as available with Centrex may already be provided with your telephone system and therefore, you may already be using a feature such as Call Forwarding in a manner that is different than we will describe.

Centrex Features

The features that are most commonly utilized by Centrex users are:

Call Forwarding	Call Hold	Call Transfer
Call Pick-up	Call Waiting	Speed Dialing.

Before we discuss how to use each of these features, a brief description of each is in order.

Call Forwarding: This feature allows a Centrex line to automatically forward all incoming calls to another designated Centrex line. Call Forwarding comes in several versions. These are Call Forwarding-Busy (Whenever your Centrex line is busy, the incoming call diverts automatically to a pre-designated Centrex line.); Call Forwarding-Don't Answer (If you do not answer your Centrex line within a designated number of rings, usually three, the call will forward to the pre-designated Centrex line.) and Call Forwarding-Variable (This version allows you to have all calls forwarding to any Centrex line that you choose. You do not have to pre-designate a Centrex line.)

Call Hold: This feature allows you to place a caller on hold so that you can dial another Centrex line or to have an off-line conversation in private.

Call Transfer: This feature allows you to transfer an incoming caller from your Centrex line to another Centrex line within the Commonwealth's system.

Call Pick-up: This feature allows you to dial a special code and answer another person's Centrex line. This capability is usually programmed by call group so that you are only able to answer calls within your immediate "hearing" range.

Call Waiting: This feature provides a tone when you are on a call notifying you that a second call is waiting. You can then simply place the first call on Hold and answer the second. (Note: the use of Call Forwarding-Busy would negate this feature.)

Speed Dialing: This feature allows you to program frequently dialed numbers so they can be dialed later through the use of a two or three digit code.

Feature Activation

It is important to note, once again, that the use of the features available with Centrex will depend on your telephone system. As you can see from the descriptions above, you may already be using some or all of the above features as part of your telephone system. The following will describe how to use these features through the Centrex system from the various types of telephone systems installed in the Commonwealth's agencies. If you are still unsure as to how to activate certain features, please contact the person responsible for your telephone system at your agency.

If you wish to activate certain Centrex features that you are not currently using, please contact the Bureau of Network Services at 727-8621.

The charts on the following pages will provide you the steps required for activating the features of the Centrex system listed above. Please note that the features marked with an asterisk (*) may require activation by New England Telephone prior to your use. More detailed activation notes will follow these charts.

Feel free to copy these charts and provide them to your users as a quick reference to these Centrex features.

Activating Centrex Features

FEATURE	ACTIVATION PROCEDURE
Call Forwarding * Variable	Access your Centrex Line. Press the # Key and then 113. Listen for Dial Tone. Dial the Centrex Number to which your calls will be forwarded. Hang up. Call Forwarding is Activated. To Cancel: Dial the # key and then 114. Hang up. Call Forwarding is deactivated.
Call Hold *	With the caller on the line, depress the "switch-hook". Listen for Dial Tone. Press the # key and then 112. You will receive new Dial Tone. Caller is now on hold and you can dial another call. To Cancel: Hang up. The line will ring and will be connected to your original caller.
Call Transfer	With the caller on the line, depress the "switch-hook". Listen for Dial Tone. Dial the Centrex Number to which you wish to transfer the call. Hang-up. The call is transferred. (To announce the call, stay on the line before hanging up.)
Call Pick-Up *	When a Centrex line in your Pick Up Group is ringing. Pick up your Centrex line. Press the # key and 111. The incoming call is automatically switched to your line for answering.

* - This feature must be enabled by New England Telephone prior to your use. Contact the Bureau of Network Service for information.

USING CENTREX FEATURES

FEATURE	ACTIVATION PROCEDURE
Call Waiting	<p>While on a call, you will hear two single tones. This is a second call trying to reach you.</p> <p>Depress the "switch-hook".</p> <p>The first caller is automatically on hold and you are connected to the second caller.</p> <p>To return to the first caller, depress the "switch-hook" once again.</p>
Speed Dialing * (To Program Your Frequently Dialed Numbers)	<p>Access your Centrex Line.</p> <p>Press the # key and 116.</p> <p>Listen for Dial Tone.</p> <p>Dial a single digit from 2 to 7.</p> <p>Dial the telephone number you wish to program. Two short tones will confirm.</p> <p>Repeat above steps for additional numbers.</p>
Speed Dialing (To Place a Call)	<p>Access your Centrex Line.</p> <p>Dial the appropriate single digit code.</p> <p>Automatic dialing will begin in approximately four seconds.</p>

* - This feature must be enabled by New England Telephone prior to your use. Contact the Bureau of Network Services for information.

Activating Centrex Features

CALL FORWARD VARIABLE

Of the three versions of this feature, Call Forwarding-Variable is the one you will activate on an as needed basis. However, this feature must be enabled by New England Telephone prior to your initial use. Contact the Bureau of Network Services for further information and a requisition form. To activate this feature, please follow these steps:

1. Pick up your Centrex line. (You must actually have a 727, 792 or 784 number.) If you have a key system, press the outside line button. If you have a PBX system, contact the person responsible for your system at your agency.
2. Dial the Call Forwarding activation code. Press the # key (Called the Pound Key) and then 113. You will hear dial tone once again.
3. Dial the Centrex line to which you wish your calls to go. (Wait for the line to be answered and informed the party that the calls are being forwarded.) Note: if no-one answers the call or the line is busy, Call Forwarding will still be activated.
4. Hang up. Call Forwarding is activated.
5. To cancel: Dial the deactivation code by pressing the # button and 114. Hang up. Call Forwarding is deactivated.

CALL FORWARD BUSY OR NO ANSWER

The activation of these two types of Call Forward is performed by New England Telephone. You must decide which Centrex line you wish to forward your calls to when you are on the telephone or when you cannot answer your telephone. New England Telephone will program this feature for you. These two types of Call Forward are meant to be used on a more "permanent" basis and therefore, New England Telephone has to be contacted to program them, Contact the Bureau of Network Services for a New England Telephone requisition form to do this.

CALL HOLD

1. With the caller on the line, depress the switchhook. (The switchhook is the part of the telephone that you press down to hang-up a call. Some telephones may also have a button that performs this function. In many cases, this button is labeled TRANSFER, FLASH OR TAP. If you use the switchhook, press it down and release it quickly.) Listen for Dial Tone.

2. Dial the Call Hold activation code. Press the # button (Called the Pound Key) and 112. You will hear dial tone again.
3. You can now place or receive another call.
4. To return to the party on hold, Hang up. Your line will ring and you will have the party that was placed on hold.

CALL TRANSFER

1. With the caller on the line, depress the switchhook. (The switchhook is the part of the telephone that you press down to hang-up a call. Some telephones may also have a button that performs this function. In many cases, this button is labeled TRANSFER, FLASH OR TAP. If you use the switchhook, press it down and release it quickly.) Listen for Dial Tone.
2. Dial the Centrex line to which you wish to transfer the call.
3. To announce the call: stay on the line until the called party answers, announce the call and hang up. The call is transferred.

To transfer unannounced: listen for the dialed Centrex line to start ringing and hang-up. The call is transferred.

CALL PICK-UP

Note: The Call Pick-up Feature will only work for those Centrex lines in a pre-arranged group. This feature must be enabled by New England Telephone prior to your use. Contact the Bureau of Network Services for further information.

1. When a Centrex line in your Call Pick-up Group is ringing. Pick up your Centrex line. (You must actually have a 727, 792 or 784 number.) If you have a key system, press the outside line button. If you have a PBX system, contact the person responsible for your system at your agency.
2. Dial the Call Pick-up Code. Press the # Button (Called the Pound Key) and 111.
3. The incoming call is automatically switched to your line for answering.

CALL WAITING

This feature must be enabled by New England Telephone prior to your use. Contact the Bureau of Network Services for further information.

1. While on a call, you will hear two single tones separated by a 10 second interval. This is your indication that a second call is trying to reach you.
2. You have two options. First, you can hang up from the first call and the second call will automatically ring at your telephone.

Second, you can depress the switchhook. (The switchhook is the part of the telephone that you press down to hang-up a call. Some telephones may also have a button that performs this function. In many cases, this button is labeled TRANSFER, FLASH OR TAP. If you use the switchhook, press it down and release it quickly.)

The first caller is placed on hold automatically and you are connected to the second caller.

3. To return to the first caller, depress the switchhook once again.

SPEED DIALING

To use this feature, you must first program your frequently dialed numbers into the system. To do this, you must:

To program your telephone numbers:

1. Pick up your Centrex line. (You must actually have a 727, 792 or 784 number.) If you have a key system, press the outside line button. If you have a PBX system, contact the person responsible for your system at your agency.
2. Dial the Speed Dialing Access Code. Press the # button (Called the Pound Key) and 116. Listen for Dial Tone.
3. Dial a single digit Speed Dialing Code from 2 to 7.
4. Dial the telephone number you wish to record on the Speed Dialing list. You will hear two short tones to confirm your entry.
5. To enter additional numbers or to change an entry, repeat the above steps.

To place a call:

1. Pick up your Centrex line. (You must actually have a 727, 792 or 784 number.) If you have a key system, press the outside line button. If you have a PBX system, contact the person responsible for your system at your agency.
2. Dial the appropriate single digit code. Automatic dialing will begin in approximately four seconds and ringing will be heard.

Feature Summary

The Centrex system is designed to make communications between Commonwealth agencies and to the outside world more efficient. The use of these features will help you to communicate a little more simply.

We cannot stress enough, however, that the use of the Centrex features will depend on your telephone system. If you are having problems activating any feature on the Centrex, please speak with the person responsible for your agency's telephone system. This person will be more familiar with your specific system's operation and allow you to use its features more effectively.

BENEFITS OF THE SYSTEM

The benefits of the Commonwealth's Centrex system enable Commonwealth agencies to communicate in an effective manner. With newer technology being introduced by New England Telephone for Centrex customers on an ongoing basis, the number of features will increase over time. For example, Voice Messaging services are being introduced at this time.

As each agency is different in its telephone needs, the benefits of the Centrex system may be numerous for one agency while more limited for another.

Some of the more obvious benefits of the existing Centrex system are summarized in the following chart. More detailed information is contained in the section following the chart.

BENEFIT	DESCRIPTION
COST EFFECTIVENESS	When dialed correctly, calls from one agency to another within the Centrex are free.
	Without Centrex, each call would incur either a local or long distance charge.
CONNECTIVITY	A lower per-minute charge is achieved due to the volume of calls made from all the agencies being processed as one account.
	Calling to another agency within your Centrex system can be done by dialing only five digits (Boston-727) or last four digits (Worcester-792 or Springfield-784).
	Ability to transfer calls to another agency.
	Ability to call forward calls to another agency.

Benefits of the System

The Commonwealth's Centrex system provides agencies with the means for cost effective communications. The system, by design, provides at no additional charge features that would normally be an additional monthly cost from New England Telephone. These include Call Forwarding, Touch Tone, Call Waiting, and Call Transfer. But these features are only the beginning. The Centrex system also addresses the basic cost concerns of any large business.

Cost Effectiveness

The most important feature of the Centrex system is its cost effectiveness for the Commonwealth. Communications requirements between agencies that are located from Pittsfield to Boston to Provincetown demand a telecommunications system that can provide good quality connections with low cost. Centrex provides both.

The Centrex system connects agencies so that calls between agencies are carried over the private Centrex system and incur no additional charge from New England Telephone. This applies to any agency calling any other agency on the Centrex system whether the two agencies are located in Boston or one in Springfield and one in Boston. In contrast, if each agency was using regular New England Telephone business service, each call from one agency to another would incur either a local call charge or a long distance toll charge. When you consider the high level of telephone traffic between agencies, the cost effectiveness of the Centrex system is astounding.

The Centrex system also helps to reduce long distance rates by sheer volume. All of the long distance vendors (including New England Telephone for in-state long distance) provide for greater discounts for higher volume. With the Centrex system, all agencies are viewed as one customer to the long distance vendor and all traffic from the Centrex system is applied to volume discount tables. This results in a per-minute rate that could not be achieved by any one agency alone. In the future, as the long distance vendors continue to compete for business, this volume discount will become even more beneficial to the Commonwealth's agencies.

Connectivity

The second largest benefit of the Commonwealth's Centrex is the connectivity it provides between agencies. Each agency can reach another agency within their Centrex system (Boston, Worcester or Springfield) in a simplified manner by just dialing the last five (5) digits of their telephone number. (Within Worcester or within Springfield, it is only necessary to dial the last four digits of the telephone number.)

When calling from Springfield to Boston or Boston to Worcester, etc. the full telephone number must be dialed. However, no long distance charge is applied to the call as it is carried over the Centrex network.

Another benefit of this connectivity is the ability to transfer a call from your Centrex line to another Centrex line. When you transfer a call from your Centrex line to another Centrex line, your line becomes free to take or make another call. This is a great benefit if your agency is required to transfer a large number of calls. On most PBX systems, this type of transfer (if even allowed) would continue to "tie up" the original line as well as an additional line which is used to "conference in" the party to whom you are transferring the original caller.

SUMMARY

The Centrex system provides the Commonwealth's agencies with a cost effective, simplified solution to those traditional telecommunications problems associated with a large organization. As agencies continue to change in responsibilities and size, the Centrex system will adapt to the demands that each individual agency places on the system while maintaining a system that addresses the needs of all of the Commonwealth's Centrex system users.

